

**WHAT IS CLAIMED IS:**

1. A scanning-based radiation detector apparatus for recording an image of an object comprising:

5 - a one-dimensional detector exposed to a fan-shaped beam of ionizing radiation from a radiation source as transmitted through said object, and arranged for repeated one-dimensional imaging of said fan-shaped beam of ionizing radiation, said one-dimensional detector being of the kind wherein charges or photons generated by interactions between said fan-shaped beam  
10 of ionizing radiation and a detection medium and traveling in a direction essentially perpendicular to said fan-shaped beam of ionizing radiation, are detected; and

15 - a device for moving said one-dimensional detector and said fan-shaped beam of ionizing radiation relative to said object while said one-dimensional detector is arranged to repeatedly detect to thereby create an image of the object, wherein

20 - said one-dimensional detector has a detecting arrangement for detecting said charges or photons, which comprises a large number of individual detecting elements, and means for grouping said large number of individual detecting elements together to form a plurality of detecting stripes side-by-side, which plurality of detecting stripes are all pointing towards a selected single point.

25 2. The scanning-based radiation detector apparatus of claim 1 wherein said selected single point coincides with the location of said radiation source.

3. The scanning-based radiation detector apparatus of claim 1 wherein said means for grouping is arranged to regroup said large number of individual detecting elements if the distance

between the one-dimensional detector and the radiation source is altered.

4. The scanning-based radiation detector apparatus of claim 1 wherein said means for grouping is arranged to group said  
5 large number of individual detecting elements together to form a plurality of detecting stripes, which each has a width corresponding to a selected required spatial resolution.

5. The scanning-based radiation detector apparatus of claim 1 wherein said means for grouping is arranged to group said  
10 large number of individual detecting elements together to form a plurality of detecting stripes, which each has a width corresponding to a selected required signal-to-noise ratio.

6. The scanning-based radiation detector apparatus of claim 1 wherein said means for grouping is arranged to group said  
15 large number of individual detecting elements together to form a plurality of detecting stripes, which is of a number, which corresponds to a selected required maximum detecting time.

7. The scanning-based radiation detector apparatus of claim 1 wherein said means for grouping is arranged to group said  
20 large number of individual detecting elements together to form a plurality of detecting stripes, which each has a varying width.

8. The scanning-based radiation detector apparatus of claim 1 wherein said large number of individual detecting elements is  
25 distributed in a two-dimensional array.

9. The scanning-based radiation detector apparatus of claim 1 wherein said large number is at least 1000.

10. The scanning-based radiation detector apparatus of claim 1 wherein said large number is at least 10000.

11. The scanning-based radiation detector apparatus of claim 1 wherein said large number is at least 100000.

12. The scanning-based radiation detector apparatus of claim 1 wherein said large number is at least 1000000.

5 13. The scanning-based radiation detector apparatus of claim 1 wherein the detecting area of each of said large number of individual detecting elements measures less than  $1 \text{ mm}^2$ .

14. The scanning-based radiation detector apparatus of claim 1 wherein the detecting area of each of said large number of  
10 individual detecting elements measures less than  $0.25 \text{ mm}^2$ .

15. The scanning-based radiation detector apparatus of claim 1 wherein the detecting area of each of said large number of individual detecting elements measures less than  $0.01 \text{ mm}^2$ .

16. The scanning-based radiation detector apparatus of claim 1  
15 wherein the detecting area of each of said large number of individual detecting elements measures less than  $0.0025 \text{ mm}^2$ .

17. The scanning-based radiation detector apparatus of claim 1 wherein said one-dimensional detector is any of a gaseous-based parallel plate detector, liquid-based parallel plate  
20 detector, a scintillator-based array, a diode array or a solid-state detector.

18. A method for recording an image of an object comprising the steps of:

- indicating a distance between a radiation source of ionizing  
25 radiation and a one-dimensional detector, wherein the one-dimensional detector is of the kind wherein charges or photons generated by interactions between an incident radiation beam of ionizing radiation and a detection medium and traveling in

a direction essentially perpendicular to the radiation beam of ionizing radiation, are detected; and has a detecting arrangement for detecting said charges or photons, which comprises a large number of individual detecting elements;

5     - grouping said large number of individual detecting elements together to form a plurality of detecting stripes side-by-side depending on said indicated distance;

10     - exposing said one-dimensional detector to a fan-shaped beam of ionizing radiation from said radiation source as transmitted through said object; and

   - moving said one-dimensional detector and said fan-shaped beam of ionizing radiation relative to said object while said repeatedly detecting by said one-dimensional detector to thereby create an image of the object.

15     19. The method of claim 18 wherein said large number of individual detecting elements are grouped together to form said plurality of detecting stripes to all point towards said source of ionizing radiation.

20     20. The method of claim 18 wherein said method is repeated if the distance between the one-dimensional detector and the radiation source is altered.

21. The method of claim 18 wherein

   - a required spatial resolution or signal-to-noise ratio is indicated; and

25     - said large number of individual detecting elements are grouped together to form each of said plurality of detecting stripes with a width depending on said indicated required spatial resolution.

22. The method of claim 18 wherein

- a required spatial resolution or signal-to-noise ratio is indicated; and

- said large number of individual detecting elements are grouped together to form each of said plurality of detecting stripes with a width depending on said indicated required signal-to-noise ratio.

23. The method of claim 18 wherein

- a required maximum detecting time is indicated; and

- said large number of individual detecting elements are grouped together to form said plurality of detecting stripes in a number, which depends on said indicated required maximum detecting time.

24. The method of claim 18 wherein said large number of individual detecting elements are grouped together to form each of said plurality of detecting stripes with a varying width.